

## Claims

What is claimed is:

1. A method for maintaining the health of an electrical storage device, the method comprising:

measuring revolutions per unit time of an engine shaft of an internal combustion engine;

determining minimum revolutions per unit time necessary to provide at least a threshold minimum percentage of full operational output power of an alternator;

receiving a status signal indicating whether the engine shaft is coupled or decoupled with at least one wheel or drive track; and

sending a control signal to control the measured revolutions per unit time equal to or greater than the determined minimum revolutions per unit time if the status signal is indicative of decoupling.

2. The method according to claim 1 further comprising:

charging an electrical storage device with the alternator.

3. The method according to claim 1 wherein the threshold minimum percentage is greater than or equal to fifty percent of full operational output power of the alternator.

4. The method according to claim 1 wherein the threshold minimum percentage is equal to the approximately full operational output power of the alternator.

5. The method according to claim 1 wherein the minimum revolutions per unit time are within a range from approximately 1200 revolutions per minute to approximately 2000 revolutions per minute.

6. The method according to claim 1 wherein status signal indicates that the engine shaft is decoupled when at least one of the following conditions is present: (a) a transmission being placed in neutral and (b) a vehicle being under an electrical propulsion mode.

7. The method according to claim 1 further comprising:

- detecting a state-of-charge information associated with the electrical storage device;

- adjusting a voltage outputted by the alternator based on the detected state-of-charge information.

8. The method according to claim 1 further comprising:

- detecting state-of-charge information associated with the electrical storage device;

- detecting a temperature associated with the electrical storage device;

- adjusting the voltage outputted by a voltage regulator based on the detected state-of-charge information and the detected temperature.

9. A system for maintaining the health of an electrical storage device, the system comprising:

- a tachometer for measuring revolutions per unit time of an engine shaft of an internal combustion engine;

- a drive train sensor for providing a status signal indicating whether the engine shaft is coupled or decoupled with respect to at least one wheel or drive track to propel a vehicle;

- a controller for determining minimum revolutions per unit time necessary to provide at least a threshold minimum percentage of full operational output power of an alternator; a controller for sending a control signal to control the measured revolutions per unit time equal to or greater than the determined minimum revolutions per unit time if the status signal is indicative of disengagement; and

- a throttle actuator responsive to the control signal.

10. The system according to claim 9 further comprising:

- an alternator for charging an electrical storage device.

11. The system according to claim 9 wherein the threshold minimum percentage is greater than or equal to fifty percent of full operational output power of the alternator.

12. The system according to claim 9 wherein the threshold minimum percentage is equal to the approximately full operational output power of the alternator.

13. The system according to claim 9 wherein the minimum revolutions per unit time are within a range from approximately 1200 revolutions per minute to approximately 2000 revolutions per minute.

14. The method according to claim 9 wherein status signal indicates that the engine shaft is decoupled when at least one of the following conditions is present: (a) a transmission being placed in neutral and (b) a vehicle being under an electrical propulsion mode.

15. The system according to claim 9 further comprising:

- a state-of-charge device for providing a state-of-charge information associated with the electrical storage device; and

- a voltage regulator for adjusting an output voltage outputted by the alternator based on the detected state-of-charge information.

16. The system according to claim 9 further comprising:

- a state-of-charge device for providing a state-of-charge information associated with the electrical storage device;

- a temperature sensor for detecting a temperature associated with the electrical storage device; and

- adjusting the voltage outputted by the alternator based on the state-of-charge information and the detected temperature.